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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,046	08/19/2005	Satoshi Murouchi	AK-481XX	6619
207 7590 03/04/2009 WEINGARTEN, SCHURGIN, GAGNEBIN & LEBOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109				
EXAMINER NELSON, MICHAEL B				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
03/04/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,046

Applicant(s)

MUROUCHI ET AL.

Examiner

MICHAEL B. NELSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/14/09 has been entered. Claims, 1, 2, 4-9, submitted on 12/10/08, are currently under examination on the merits. The amendments to the specification, submitted on 01/14/09, are also entered in order to fix the typographical error.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 2 and 4-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "fracture rate X...is 0.045 to 0.094" is not supporting in the specification as originally filed. While the two discrete endpoints are adequately disclosed, (i.e. in Table 2), one cannot use specific and isolated examples to draw support for the much broader limitation of a continuous range. For example, a fracture rate of 0.060 would be within the scope of the limitation in question and yet there is clearly no disclosure in the specification as filed to support this fracture rate.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Walpita et al. (U.S. 5,348,990), with evidentiary support from the Ticona NPL document.

Regarding claims 1 and 2, Walpita et al. discloses a molded product (C1, L1-25) with a dielectric constant of less than 3.0 (Table 1, C3, L55-C4, L10). Walpita et al. also discloses that the resin for the molded product be made of liquid crystal polyesters (C2, L1-10) which are made of 60% 4-hydrobenzoic acid, 18% terephthalic acid, and 4% of a dihydroxydiphenol (i.e. 6-hydroxy-2-naphthoic acid), with less than 20% of the other aromatic decondensers (i.e. biphenol, 18%) (C2, L30-40). The LCP has a melting point in the range of 280 to 375 degrees Celsius (C2, L10-15). The overall composition contains 30-60% LCP and 5-40% hollow glass spheres (C3, L20-30). The hollow glass spheres (i.e. aspect ratio of 1) are disclosed as being 4-60 microns in diameter. No inorganic fillers are mentioned in the examples besides the glass balloons and therefore the composition reads on the 0% instantly claimed.

Regarding the dielectric dissipation factor, while Walpita et al. does not explicitly disclose the dielectric dissipation factor, given that the dielectric constant is less than 3, as instantly claimed, and given the substantially identical LCP composition to that as instantly claimed, the molded product would have a dielectric dissipation factor within the range as instantly claimed.

Regarding the viscosity of the LCP, while Walpita et al. does not explicitly disclose the instantly claimed viscosity, given that the Ticona NPL document discloses that Vectra® brand LCP are used in injection molding (Processing section) and given that they are disclosed as having “very low melt viscosities” (Properties section, second bulleted item), the Vectra brand LCP’s used in the Walpita (C2, L30-40) would possess a viscosity within the instantly claimed range.

Regarding the fracture rate of the glass spheres, while Walpita et al. does not explicitly disclose the instantly claimed fracture rate it does disclose that the glass spheres are selected in order to be crush resistant (C2, L0-65) and in the examples the broken glass volume is disclosed as being 0% and 2% (last two examples of Table 2, C3, L65-C4, L20). Therefore, one having ordinary skill in the art would expect the fourth example in Table 2 of Walpita et al. to have a void fraction within the instantly claimed range using the instantly claimed formula.

Regarding the volume hollowness of the glass spheres, while Walpita et al. does not explicitly mention the instantly claimed volume hollowness, it does disclose that the dielectric constant of the hollow spheres is between 1.1 and 2.0, which would lead one having ordinary skill in the art to expect that the spheres having a dielectric constant of 1.1 would have more than 50% of their volume accounted for with air (i.e. given that air has a dielectric constant of 1).

While the molded product is not explicitly mentioned as being formed by injection molding, the resulting product (i.e. film) would have the same characteristics regardless of how the product was molded. Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d

at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walpita et al. (U.S. 5,348,990), with evidentiary support from the Ticona NPL document, as applied to claim 1 above, and further in view of Yamada et al. (U.S. 5,767,223).

Regarding claims 5-9, Walpita et al. discloses all of the limitations as set forth above. Additionally, Walpita et al. discloses that additives may be added to the composition (C2, L45-52). Walpita et al. does not disclose any particular characteristics of the additives.

Yamada et al. discloses adding fibrous filler material to a liquid crystal polyester resin in order to improve its mechanical strength (C8, L40-45). Glass fiber is disclosed as one such filler, (C8, L45-50). The aspect ratio and diameter of the glass fiber in Yamada et al. is disclosed as being adjustable by one having ordinary skill in the art (C9, L35-45). Moreover, one having ordinary skill in the art would consider it obvious that a "fiber" have an aspect ratio of greater than 4. The weight percent is disclosed as being between 10 and 90 % (C9, L5-10). The applications for liquid crystal polyester resin compositions are disclosed in Yamada et al. as including sealant (i.e. holding) materials for electronic parts (C9, L55-65), which would be included in wireless telecommunications equipment's transmitting and receiving electronic parts.

The inventions of both Walpita et al. and Yamada et al. are drawn to the field of liquid crystal polyester compositions and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the composition of Walpita et al. by adding the mechanical strengthening fillers as taught by Yamada et al. for the purposes of imparting increased mechanical strength.

Regarding the thickness of the materials molded from the resin composition, one having ordinary skill in the art would have found it obvious to have adjusted the thickness of the final molded product to suit the marketable application, absent evidence to the contrary.

Response to Arguments

10. Applicant's arguments filed on 01/14/09 are moot in view of the new grounds of rejection. Arguments which are still deemed to be relevant are addressed below.

11. Regarding applicant's arguments against the new matter rejection against the ranged limitation of claim 1, the examiner maintains that there is inadequate support in the specification as filed to claim such a range. Please see the 112 1st paragraph rejection above. In general, the specific data points are not adequate to broadly claim all data points which lie therebetween.

12. Regarding applicant's arguments directed towards the "X" and "E" calculations, the examiner finds these calculation methods to be adequately disclosed in the specification as filed and withdraws any objections to these calculated parameters.

13. Regarding the arguments directed towards the dielectric constant, these arguments are moot in light of the new grounds of rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL B. NELSON whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571) 272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

/MN/
02/05/08